fully performed, by the late Dr. Post of New York; and consider the many difficulties attending this case; in the language of the attending physicians, it may be pronounced, "a splendid triumph of surgery over disease and impending death."

Hudson, December 1st, 1838.

Art. VII. *Contributions Illustrative of the Functions of the Cerebellum.* By John D. Fisher, M. D., of Boston.

Some of the facts stated in the following communication have a bearing on the physiology of the cerebellum.

The office which this portion of the encephalon performs in the animal economy, has of late years engaged the attention of physiologists, and has been made a subject of much discussion. Theories have been advanced, experiments on animals have been performed, symptoms have been noted, and pathological observations have been made by various individuals with the express object of determining this interesting question, and it still remains a matter of speculation and of investigation.

Three different functions have been attributed to the cerebellum by as many classes of writers.

One class maintain the doctrine that this organ is the regulator of the movements of locomotion; a second, that it is the centre and source of sensation; and a third, that it is the organ of the instinct of reproduction.

The advocates of each of these theories will read the following details with some degree of interest, and the followers of the founder of the new theory of cerebral physiology, and of mental philosophy will not fail to summon some of them as proofs of their adopted doctrine.

Case I. *Pneumonia. Absence of Testes. Cerebellum of small size.* D. O, ætat. 45, book-keeper, intemperate. Health gradually declining for two years; has had derangement of digestive organs with organic disease of liver. First seen a few hours before death; was lying on sofa; skin yellow, pulse quick, small; respiration short and frequent, accompanied with cough, and an expectoration of dark thick fœtid sputa; thorax superficially examined, gave usual resonance on left side; on right from clavicle to nipple flat, below quite natural; respiration audible in left lung, front; in right, vesicular murmur could not be heard from clavicle to near nipple, but was replaced by bronchial respiration and mucous ronchus; in lower part respiration distinct with fine mucous or crepitious ronchus, resonance of voice loud and sharp, sound seeming to be immediately against the ear; rest of chest not examined, the intention being to re-examine the whole carefully at next visit. Expec-

torant mixture, mild cathartic; stimulant poultice to chest in front. Patient objected to cathartic, and remained upon sofa till 10 P. M. when it was proposed to apply poultice; he arose for this purpose; walked to the fire; complained of faintness and was led back to sofa when he laid down, gave a single gasp and died.

Autopsy, on the following day. Stature above the common size; body well formed and of good proportions; limbs round and rather plump. Skin every where yellow; features shrunken; face smooth, not presenting the slightest appearance of whiskers or beard. Left arm, lower part of abdomen, penis, scrotum and upper part of left thigh discoloured, exhibiting marks of severe bruises occasioned by a fall a few days before death. Skin of pubes and scrotum without hair, except a few scattering ones. Penis small, resembling that of a boy ten or twelve years old: scrotum contracted in size; no testicles could be felt. Left chest natural on percussion, but upper part of right front, side and back, completely flat. Abdomen soft and yielding except in region of liver, the edges of which could be distinctly traced by the hand. On opening the thorax, right lung not collapsed, completely filled right cavity; left lung slightly collapsed; lower lobe of latter adherent, probably from old inflammation; substance of organ healthy, crepitating under pressure; colour somewhat more livid than natural, but on incising it no frothy or sanguineous fluid flowed from it as is usual in a lung inflamed to the first degree; no pitting upon pressure; elasticity natural; mucous lining of bronchi rather redder than natural, without thickening or softening or the dotted appearance of inflammation. Right lung not adherent, much larger in appearance, heavier and more dense than left, particularly upper lobe, and of a dark livid colour. The upper portion presented a perfectly smooth surface like that of the liver and was hard and inelastic to the touch with exception of a small part of anterior inferior edge, an inch in length, and half an inch in breadth, which was somewhat softer and crepitating. Middle and lower lobes permeable to air, and crepitated under fingers, retaining, however in a slight degree the indentations made by them. On making an incision from apex to base, a striking difference of structure was exhibited, the upper lobe cutting like liver, yielding no blood or fluid, while from the lower portions, there flowed a considerable quantity of frothy and bloody fluid. About one third of upper lobe exhibited all the characteristics of red hepatization, while the two lower thirds were in the third stage, or grey hepatization. The line of demarcation between the two degrees of inflammation, was strikingly distinct. The incised surface of upper third of this lobe was of a dark red colour, granular, hard and not easily broken down by the fingers; when torn, granular aspect very evident; the remaining portion of this lobe was of a pale yellow or straw colour especially inferiorly; it was solid, hard, less so however than superior part, and dry on incision; it was also more easily lacerable, and more disorganized. The middle lobe was congested but not hepatized; lower lobe

of healthy aspect. Mucous membrane of bronchi red; this redness decreased on descending to lower lobes; pleura free from any traces of recent disease. Pericardium natural, containing rather more than usual quantity of fluid. Heart rather larger than common; left ventricle slightly hypertrophied and dilated. Aortic valves indurated; many small cartilaginous points of the size of pins heads existed in the inner surface of aorta just above the valves. Liver large; externally and internally of a light grey colour, indurated and granulated throughout. It was as hard as, and cut like cartilage, grating under the knife, and resounding when struck. When torn, the granular structure was finely displayed, the grains appearing nearly as large and coarse as small shot. Gall-bladder contracted, containing a little imperfect bile. Other abdominal viscera free from any peculiar disease: the examination, however, was not thorough for want of time, and as attention was more particularly attracted to the genital organs.

On carefully examining penis (which as was stated, appeared very small) the prepuce was found covering the glans, and seemed as if it had been seldom or never retracted; in fact the glans was with difficulty made to pass through it, the aperture being so much contracted. When exposed it was pale, small and pointed, and the urethra of exceedingly small calibre. All the parts of the organ resembled perfectly those of a boy not yet arrived at the age of puberty. The scrotum was soft and flabby; it contained no testicles, but it was thought that the spermatic cord could be felt at the upper part. An incision was then made, commencing at the inguinal ring and extending to the lower extremity of left side of scrotum. The skin, the dartos, and the tunica vaginalis, were of a natural appearance, but no testes nor any bodies of a glandular nature existed in the scrotum. In the upper part of the left tunica vaginalis, the spermatic cord was discovered extending into its cavity about half an inch, and terminating abruptly in a point of a semi-lunar shape. The cremaster muscle was seen extending in numerous small fibres beyond the terminus of the cord which spread themselves out upon the tunica vaginalis. The cord itself was much smaller than is usual in adults. The vas deferens was properly formed and nearly of natural size; its cavity terminated in a cul-de-sac at the end of the cord. The arteries and veins were exceedingly small, hardly distinguishable. The right side of the scrotum and the right spermatic cord differed in no respect from the left except that the latter extended to the bottom of the scrotum and turned upwards a quarter of an inch. So far as they were traced into the abdomen they presented no other peculiarities. Circumstances prevented examination of the *vesiculæ seminales;* it is therefore impossible to say whether they existed or not. From the perfect condition of the vas deferens, it is presumed they did exist, and might have been found.

The history of the individual, the absence of the testes and other circumstances, having brought to mind the doctrines of phrenology in relation to the functions of the cerebellum, the examination was extended to the cra-

nium and its contents, with a view to testing the truth of these doctrines. The size of the head was found by measurement to be as follows, viz. 22 inches in circumference from the middle of the forehead over the crucial ridge of occiput: 16 inches from the orifice of one ear to that of the other over the highest point: 6 inches from mastoid process to mastoid process, and 8 inches from ear to ear. The head, therefore, was a large one. On opening cranium and removing brain, it was found to be in a healthy condition, and of large size—but the relative proportion of the cerebrum to the cerebellum was strikingly unnatural; the latter being comparatively exceedingly small. Upon weighing the encephalon, comprising the cerebrum and cerebellum on the day following, it was found to weigh 51½ ounces—or 3 pounds 3½ ounces avoirdupois. The cerebrum alone weighed 47 ounces. The cerebellum alone weighed 4½ ounces. The weight of the cerebellum to that of the cerebrum was therefore, as 1 to 10½ within a fraction. The cerebellum measured in its transverse diameter 4 inches, in its antero-posterior diameter 2½ inches, and in thickness 1½ inch.

According to Meckel and others the average weight of the cerebrum and cerebellum united is 3 pounds, and the weight of the cerebellum to that of the cerebrum as 1 to 7 or 1 to 8. Its usual measurement being in its transverse diameter 4 inches, in its antero-posterior diameter 2½ inches, and in thickness 2½ inches. The cerebellum, therefore, in this person was one-third less in size and weight than is naturally the case in an adult male—and was of the exact weight of that of a female child six years old, who died and whose cranium was dissected at the same period.

The history of the patient who forms the subject of the preceding case, furnished by a near relative, is of much physiological interest. He was born in 1791, and was therefore 45 years of age at the time of his death. The late Dr. Warren discovered the deficiency of testes soon after birth, and observed that he would probably prove to be a natural eunuch. He grew up to the age of puberty without exhibiting any peculiarities distinguishing him from his fellows, except the non-appearance of the testicles. From the age of puberty to the age of twenty-five, and even to the day of his death, he presented the following peculiarities. His voice remained unchanged in its tone, which was decidedly effeminate. He was fond of music and sung with much taste and effect, but always in treble and in concert with females. After the age of 25, however, it became grave, and he could no longer accompany female voices with ease. He had no beard, and was never known to shave. He never exhibited any amorous propensities or desire for female society. Although of a social disposition, he was very shy in company with females of his own age, and always approached them with evident timidity. He was extremely guarded in his expressions before ladies, and often reprimanded his associates for using in their presence language in the least degree expressive of an indelicate or amorous sentiment. When about 21 years of age, he became acquainted with a number of young

men fond of pleasure and frolic, and by degrees acquired a taste for the inebriating cup, but during the many scenes of dissipation in which he participated, he was never known to visit a house of ill-fame, or to address any of the numerous ladies of pleasure who walked the street. In short, he was, as his mother expressed herself, "a virgin in feeling and conduct to the day of his death."

The facts presented by this case, or some of them at least, are peculiar and instructive. They shed some light on the subject of cerebral physiology, and support the opinion, that a certain connection exists between the cerebellum and the function of generation.

The coincidence of the imperfect development, or diminutive size of the cerebellum, with the natural and entire deficiency of amorous propensities and sexual desires, which was a remarkable feature in the case, not only favours this notion, but also tends to strengthen and to establish the doctrine that the cerebellum is the organ of the instinct of reproduction. This is evidently the only legitimate conclusion to be derived from the phenomena which characterized the case. Certainly no proof can be drawn from them confirmatory of either of the other theories respecting the functions of the organ. On the contrary, the facts seem to bear direct evidence against the truth of these speculative notions. For if the views of Flourens and others, who regard the cerebellum as the regulator of locomotion in men and animals, be true, the individual who was the subject of the phenomena I have recorded, should have been a feeble, tottering being, incapable of maintaining a uniform equilibrium of the body, and of exercising the common functions of station and progression.

But notwithstanding the unnatural proportions and diminutive size of the cerebellum, this individual was a strong and vigorous person, and executed with readiness and without embarrassment, all the locomotive movements natural to his species, like any other robust and healthy man.

He never exhibited during any period of his life, so far as I can learn, any feebleness or want of harmony in his movements, which could be charged to an imperfection of his physical organization. So far, therefore, as the circumstances of his case have any physiological connection with the cerebellum, they evidently do not favour the theory, that this organ was destined to control and regulate the functions of locomotion.

Nor do the phenomena favour the notion that this portion of the encephalon is the source and centre of sensation, as has been supposed and advocated by M. Foville, from the fact that it springs from a part of the sensatory tract of the spinal marrow. For if this were the true function of the organ, its possessor would have exhibited during life an unnatural obtuseness, or deficiency of sensibility, and a diminution or absence of physical and mental power which this property of the blood promotes and influences. But no such imperfection was ever noticed in this person. If, therefore, the circumstances of the case afford any evidence tending to illus-

trate the functions of the cerebellum, it is that the office of the organ is the one which was long since attributed to it by the founder of phrenology.

Case II. *A violent blow over the occiput, and upper part of the neck, followed by immobility of head, numbness of right arm, abolition of amativeness, aberration of visual perception.*—T. P. B., ætat. 41 years, suffered a serious injury on the 29th day of June, 1836, which resulted in a series of interesting symptoms. Mr. B. was a passenger in one of the trains of railroad cars which unfortunately came in collision on the tract between Boston and Providence. While seated on a front seat of a car, with his back directed towards the engine, Mr. B. noticed that a sudden effort was made by means of the "breaker," to arrest the progress of the cars. On observing this, he arose from his seat, and thrust his head out of the window to ascertain the meaning of this operation. At this moment, and while the back part of his head and neck were opposite the edge of the window-frame, the two trains came in collision with tremendous and fearful violence. The consequences of this accident were, that the cars were broken into many fragments, and that most of the passengers who occupied them were thrown out and seriously injured. Mr. B.'s head and neck were brought up against the edge of the window-frame with great force, and he himself was projected to a distance upon the ground, where he remained for some time in a state of insensibility. When he was first lifted up, it was thought by his fellow-passengers that he was fatally wounded—that his skull was fractured, or the bones of his neck dislocated. He, however, regained his intelligence, and was soon conveyed to his dwelling in a carriage. On visiting him one hour after the accident, I found him in his bed, suffering great pain in the occipital portion of his head, and upper part of the neck. He was lying on his back, unable to rotate his head on the pillow, or to move from a horizontal position. Every attempt to move himself was attended by excruciating pain, and he would not allow others to move him from fear of suffering.

On examination, some blood was found on his face, and a flesh wound of minor importance was discovered in the integuments covering the left mastoid process, and the inferior portion of the occipital bone. These parts were somewhat swollen and tender, as were the integuments and muscles of the neck. No indications of fracture of the cranium existed, nor could any dislocation or fracture of the cervical vertebræ be detected. The pain in the head, the disturbed state of mind, the inability to move, and the state of the pulse and other symptoms, which the patient laboured under, induced me to believe that he had suffered a serious concussion of the brain, and an injury of the muscles of the neck, and of the first and second cervical vertebræ.

The immediate treatment was based on these suppositions. For two or three days and nights he obtained little or no sleep, and could not be moved from his horizontal position. The antiphlogistic treatment was continued for

some days, when he was so much relieved, that he could by much care, and cautious effort raise himself from his bed. To do this, he was first obliged to turn cautiously from his back upon his left side, and then raise himself to the sitting posture by the aid of his left elbow. This was the only method he could adopt to raise himself from his bed without rotating or moving his head, which movement was constantly accompanied by extreme suffering. On the second day after the accident, he complained of a numbness in his right arm, and experienced a difficulty in passing his urine. The contractile power of the bladder seemed to have been diminished, and he was compelled to resort to artificial means to evacuate the organ. In the course of two weeks, he was able to leave his bed and to walk into the street. And now another interesting symptom was manifested. As he walked about the house and in the street, he observed a singular appearance in the objects about him. Near objects seemed to him to be at a distance, and he felt as if he was much elevated above them.

While promenading the side-walk, the street seemed to be interminable in length; and when standing by and conversing with a person of his own height, he experienced the feeling that he was vastly the tallest, and that he was actually looking down upon him during the conversation, yet all objects appeared natural in colour, size and proportion.

Between the fourth and fifth week after his injury, he made the discovery that he had lost the desire and physical power for sexual intercourse, and that no amorous sentiment, or the approach of a female, could excite it; and he was of the opinion that the amative instinct and sexual desire had ceased to exist from the time he was wounded.

These symptoms, which were the prominent and peculiar ones of the case, were exceedingly troublesome and were for a long time combatted by local bleeding, blistering and other remedies. The bladder gradually recovered its power, and the aberration of visual perception was by degrees corrected, so that in the course of four months, Mr. B. was enabled to urinate freely and naturally, and to view objects in relation to himself as he was accustomed to see them previous to his injury.

He was still, however, unable to rotate his head, and when he attempted to do so, he heard a sort of grating noise, which evidently arose from the deranged action of the vertebræ of the neck, or of the ligaments or muscles attached to them. The numbness of the right arm still continued, and the limb had decreased in size, its circumference being considerably less than that of the left arm.

The instinct of generation, for which he was peculiarly distinguished while in health, was still dead, and the idea of its total annihilation, gave him much uneasiness. The trouble in moving the head, and the numbness of the arm continued for some months, and the generative function remained completely silenced, according to B.'s own report, until the last summer, and is even now, (Dec. 18, 1838,) but partially restored. The mental powers

of this patient, particularly his memory of events, were for a time seriously affected, and his decision, courage and resolution enfeebled. In these respects, however, as in most others, the individual now enjoys his accustomed health and strength.

The history of this, like that of the preceding case, is interesting both to the physiologist and pathologist. Viewing the phenomena as the results of the accident which befel the patient, this will readily account for their development, and at the same time recognize a physiological connection between the brain and some of them, the existence of which cannot be explained except on the supposition that certain portions of the encephalon are endowed with certain specific functions. The prominent symptoms were, 1st, the sudden loss of sensation; 2d, the fixed position of the head; 3d, numbness of the arm; 4th, loss, for a time, of the contractile power of the bladder; 5th, abolition of the amorous propensities; 6th, aberration of visual perception of objects. All these phenomena must have resulted from the injury which Mr. B. received, and are susceptible of a rational and satisfactory explanation. The force of the blow, as has been stated, fell upon the occipital portion of the cranium and upper part of the neck. The direct results, therefore, of the blow of the window-frame, must have been, 1st. an injury of the muscles which support and rotate the head, and also of the first and second vertebræ of the neck and their ligaments; 2dly, a concussion of the whole brain, and more particularly of the cerebellum; and 3dly, and lastly, a sudden compression of the spinal cord of the neck. Admitting these to have been the direct consequences of the blow, the symptoms above described would naturally follow. For, in the first place, a concussion of the brain would occasion the first symptom, viz. the loss of all sensation.

Secondly, a wound of the trapezius, the splenius, the complexi, the oblique, and recti muscles, and of the ligaments of the first and second cervical vertebræ, would necessarily give rise to the fixed and immoveable position of the head, which was one of the most troublesome and obstinate symptoms that marked the case.

Thirdly, a violent blow on the spine of the neck would necessarily produce a lesion in the posterior, lateral columns of the spinal marrow, at the points where the nerves of sensation have their origin, and would occasion the numbness which Mr. B. experienced in his arm.

Fourthly, the loss of the contractile power of the bladder, and also of the erectile energy of the penis, which last ought to have been named as one of the phenomena of the case, are referable, and would naturally result from a partial injury which the whole spinal marrow must have suffered opposite the point where the wound was inflicted on the spine of the neck. It should be observed, however, in relation to the erectile power of the penis, that this power depends very much on the existence and energy of the venereal desire or passion, and that if this be destroyed, as in B.'s case, the consequence

would be a partial or total deficiency of muscular energy and functions of the external organs of generation.

Fifthly, the sudden and entire destruction for a long time of the instinct of amativeness, which was one of the most interesting circumstances of the case, can be accounted for only on the principle that the cerebellum is the seat and source of this instinct. The principal force of the blow was received upon the occipital bone, and must have produced a lesion of some kind in the cerebellum.

If such were the fact, the inference is a very natural one, that the lesion of the cerebellum was the proximate cause of this singular symptom. I know of no other rational explanation of the fact; certainly no other explanation is suggested by anatomical or physiological researches.

The sixth and last remark which I shall make respecting the rationale of the symptoms relates to that singular error of perception which the patient was conscious of while viewing external objects.

Why near objects should appear at a distance, and the streets of interminable length: and why he himself should possess the feeling that he was much taller than objects and persons of his own height, and that he was looking down upon them? are questions not easily answered. The organs of vision were uninjured, and the patient could judge accurately of the form, colour and other external properties of objects of sight. This singular affection then did not depend on any lesion of the organ of vision, the eye; and the lesion, therefore, it appears to me, must have been that of perception, and must be accounted for on the principle that a particular portion of the brain is appropriated for the exclusive function of visual perception. If this principle be founded in truth, then the singular error of perception under consideration might result from the blow which Mr. B. received. For it has been demonstrated that the optic nerves have their origin in the corpora quadrigemina, which bodies, it is well known, are in immediate connection with the cerebellum. These bodies or ganglions, therefore, as well as the cerebellum, must have experienced the effects of the blow inflicted upon the occiput, and might have suffered an organic change sufficient to derange their functions and give rise to this interesting phenomenon.

Case III. *Hemiplegia. Morbid Salacity. Disease of the Cerebellum.* —The following case occurred in the practice of my friend Dr. Whittimore, of Brighton, and was communicated by him to the Boston Society for Medical Improvement; and with his permission, I make it a part of this communication. I will here state what is not especially noticed in the description of the case, that the subject of it had, for some years previous to the attack of hemiplegia, lost much of his amorous desires, and the physical ability of gratifying them.

The case was reported in September, 1835, in the following words:

"Mr. ——, ætat. 73, has been married about 40 years, has had eleven

children, ten of whom, as also his wife, are still living. Mr. —— worked alternately as shoemaker and farmer; frame large, and general appearance that of robust health. Soon after marriage, he began to complain of dizziness and noises in head, to which he was more or less subject until his death. About four years ago, he experienced on rising from bed, for three or four mornings in succession, excruciating pain in the head, which was followed by a sensation as if something had given way in left side of head with an audible crack, such as to lead him to inquire if the bystanders did not hear the sound, and was surprised to find they did not. After this, he became partially deaf in left ear, and the dizziness increased. During these dizzy turns, he was obliged to catch hold of the nearest object to keep from falling, and at such times every thing seemed to be whirling about like wheels, with a motion always from right to left; these symptoms were for the most part attended with great heat and pain about head, and with redness of scalp. During the severity of suffering, he was at times delirious. Most relief was gained by cupping nape of neck and very little from other means.

"Two years ago, had hemiplegia of right side, and has had two other attacks since, all slight. Since the occurrence of these he has had a *morbid salacity*, which continued with little intermission, and increased by degrees till three months ago, and then gradually subsided, so that the desire became imperious only once or twice during the night without ability to gratify it, owing to imperfect erection, and for the last year, there has been *no* seminal emission. This lustful feeling aggravated all his other sufferings, and destroyed most of his comfort. Such is the account of the patient as given by a particular friend; but the patient during his sickness, expressed himself strongly on the subject of this revived sexual propensity, and declared that the desire was felt many times during the day and night, and was scarcely diminished by the frequent attempts he made to gratify it.

"For the last year, he has been decidedly growing worse, both in body and mind—*mind in a state of imbecility.* Early in summer, he had an *epileptic* paroxysm, and within a few weeks before his death, had a second. For the last five months was occasionally delirious—screaming as if frightened, and sometimes as if in pain—was afterwards unconscious of what had happened.

"He died on the 18*th September*, 1835, having been in a state of stupor for some days.

"On the following day, the head was examined. The membranes of the brain presented some morbid appearances, such as very strong adhesion of the *dura mater* to the skull; thickening with white spots in the arachnoid and a large quantity of serous fluid in the pia-mater; arteries undergoing ossificatio[illegible].

"The brain was healthy, except for the disease to be described. The

cerebellum being removed for examination, the right lobe was found to be of its full size; the left about one-fifth smaller, and the greater part of its under surface in a *remarkably* collapsed state—*hollowed in* as an organ usually appears *externally*, when there has been any very great loss of substance within. In one place to the extent of about three lines square, the disease beneath had penetrated quite to the surface, and over this the *pia mater* contained a considerable quantity of dull yellowish serum, elevating the *arachnoid;* otherwise the surface of this lobe of the cerebellum looked well, retaining its integrity, natural colour and consistence.

"An incision having then been made through the collapsed portion to the centre of the lobe, and another to cross it, it was fully demonstrated that the whole substance of the organ below the *crus cerebelli* was destroyed, and all traces of it gone, except a line or two in thickness, of the very surface which served as *parietes* to what may be called the cavity. The sides of the cavity were in contact, and were connected here and there by a very soft delicate tissue of a light rusty brown colour, and were separated by the slightest force. The same sort of substance lined the cavity, appearing in some parts a mere discoloration of the inner surface; in others, like a distinct tissue, passing by invisible degrees into the *pia mater*, where it dips down between the lobes of the cerebellum. The cavity very probably contained some serum, but if so, it had escaped before it was laid open. The crus cerebelli had a dull, somewhat opaque yellowish colour, and was considerably firmer than natural, especially towards its under surface, where it bounded the cavity. This surface was also somewhat irregular, as if a small portion of it had been destroyed by disease. On cutting through its substance, there was found a coagulum of dark-coloured blood of the size of a duck-shot; the remainder of the cerebellum was healthy."

In this case, we have a remarkable pathological proof of a relation existing between the cerebellum and the instinct of reproduction; and the revival of the instinct and powers of propagation, (which had for years been extinguished,) taking place on the accession of a disease of the cerebellum, and continuing active until the organ began to lose its firmness of texture, and to undergo disorganization, is strong confirmation of the evidence furnished by the two preceding cases, that this part of the brain is the source and centre of the instinct.

Boston, December, 1837.